

## **CURRICULUM VITAE**

Lori Lynn Ploutz-Snyder, Ph.D.  
Dean, School of Kinesiology  
Professor of Movement Science  
4170 Observatory Lodge  
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University of Michigan  
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## **EDUCATIONAL BACKGROUND**

Post-doctoral Research – Department of Physiology – advisor Dr. Ronald Meyer  
Michigan State University, 1994-1996

Ph.D. Department of Biological Sciences – advisor Dr. Gary Dudley  
Ohio University, June 1994

M.S. Department of Zoological & Biomedical Sciences – advisor Dr. Fredrick Hagerman  
Ohio University, August 1989

B.S. Honors Tutorial College (in Zoology)  
Ohio University, August 1989

## **FIELDS OF STUDY**

Undergraduate: Biology  
Graduate: Physiology, skeletal muscle, exercise

## **THESES**

Bachelors/Masters *Cardiovascular and Metabolic Adaptations to Hyperoxic Training*

Ph.D. *Muscle Mass Involvement in Exercise Following Prolonged Periods of Use and Disuse*

## **LEADERSHIP & PROFESSIONAL TRAINING**

Dynamics of Daily Negotiation – January 2011  
Communication Skills for the Technical Professional – January 2011  
Challenges Facing the Technical Leader – January 2011  
Leadership Principles for Today's Professional – April 2011  
Media Training – October 2011  
Project Management – March 2012

Effectiveness for Team Leadership and Communication – July 2012

NASA Science Management Training – September 2013

University of Michigan Provost's Dean Training – 2016-2017

- Using Financial Resources Effectively
- Development
- Working Effectively With Faculty
- Faculty Recruitment
- Freedom Of Information Act

Center for Research on Learning and Teaching – A Thousand Cuts: Responding to Climate Concerns, University of Michigan – February 2017

Nano-MBA, Ross School of Business, University of Michigan – May 2017

APG Biosciences Subcommittee, University of Michigan – February 2018 – present

Leadership Development: Diversity, Equity and Inclusion, University of Michigan – June 2018

Enrollment Management Council, University of Michigan – April 2019 – present

APG DEI Subcommittee, University of Michigan – November 2019 – present

Creating Climates Resistant to Sexual Harassment: A Toolkit for Leaders, University of Michigan – February 2020

## **TEACHING & ADMINISTRATIVE EXPERIENCE**

<b>7/16 to present</b>	<b>Dean</b> , School of Kinesiology, University of Michigan, Ann Arbor, MI
<b>7/16 to present</b>	<b>Professor of Movement Science</b> , School of Kinesiology, University of Michigan, Ann Arbor, MI
6/13 to 7/16	Musculoskeletal Alterations Team Leader, National Space Biomedical Research Institute, Baylor College of Medicine, Houston, TX
12/08 to 7/16	Lead Scientist, Exercise Physiology and Countermeasures Project, National Aeronautics and Space Administration, Johnson Space Center & Universities Space Research Association, Houston, TX
7/10 to present	Adjunct Full Professor, Division of Endocrinology, Department of Internal Medicine, University of Texas Medical Branch, Galveston, TX
6/09 to present	Adjunct Full Professor, Department of Health and Human Performance, University of Houston, Houston, TX
9/08 to 12/08	Exercise Physiology Lead, National Aeronautics and Space Administration, Johnson Space Center & University Space Research Association, Houston, TX
1/08 to 9/08	Professor, Department of Exercise Science, Syracuse University, Syracuse, NY

5/04 to 5/08	Chair, Department of Exercise Science, Syracuse University, Syracuse, NY
7/01 to 12/07	Associate Professor, Department of Exercise Science, Syracuse University, Syracuse, NY
4/96 to 5/04	Adjunct Assistant Professor, Department of Neuroscience and Physiology, State University of New York Upstate Medical University, Syracuse, NY
1/96 to 7/01	Assistant Professor, Department of Exercise Science, Syracuse University, Syracuse, NY
9/95 to 12/95	Assistant Professor, Department of Biological Sciences, Ohio University, Athens, OH
9/94 to 6/95	Instructor, Department of Biological Sciences, Ohio University, Athens, OH
1/90 to 8/90	Project and Curriculum Assistant, National Aeronautics and Space Administration Space Life Science Training Program, The Bionetics Corporation, Kennedy Space Center, FL
9/89 to 1/90	Teaching Assistant, School of Kinesiology, Simon Fraser University, Burnaby, British Columbia, Canada
9/86 to 6/88 and 9/90 to 6/91	Teaching Assistant, College of Osteopathic Medicine, Department of Zoological and Biomedical Sciences, Ohio University, Athens, OH
9/88 to 6/89	Physiology Tutor, College of Osteopathic Medicine, Ohio University, Athens, OH

### **SUBJECTS TAUGHT**

Undergraduate	Human Physiology (lecture and laboratory), Exercise Physiology (laboratory), Gravitational Physiology (lecture and laboratory), Contemporary Canadian Health Issues (lecture), Exercise Testing and Interpretation (lecture and laboratory), Exercise Prescription in Health and Disease, Motor Learning, Pathophysiology
Graduate and Professional	Didactic course for residents in Physical Medicine and Rehabilitation, Exercise Physiology (laboratory), Medical Physiology (tutor), Exercise Testing and Interpretation (lecture and laboratory), Exercise Prescription

in Health and Disease, Skeletal Muscle Physiology, Pathophysiology,  
Current Literature In Exercise and Sport Science, Space Physiology

Courses Developed Didactic course for residents in Physical Medicine and Rehabilitation  
Gravitational Physiology (lecture and laboratory)  
Pathophysiology  
Skeletal Muscle Physiology  
Exercise Testing and Interpretation (lecture and laboratory)  
Motor Control and Learning  
Exercise Prescription in Health and Disease

### **GRADUATE STUDENT RESEARCH ADVISING**

*Students are from Syracuse University unless otherwise indicated.*

M.S. Thesis Chair Andrew Kelleher  
Eric Coellen  
Jesse Lloyd  
Nina Bermudez  
Summer Baldwin  
Brian Clark  
Todd Manini  
Elizabeth Yackel-Giamis  
Lynn Fennechia  
Craig Holt  
Jill Nappi

#### M.S. Thesis Committee

Seung Ho Jung  
Brian Weil  
Jessica Mistretta  
Erin Kelly  
Joe Pierce  
Brian Pearson  
Scott Collier  
Ciji Miller  
Lynn Sauro  
Kristi Palmaccio  
Li Yi-Hua  
John Mayer  
Ciji Miller  
Cheri Alverado  
George Mochizuki

Ph.D. Dissertation Chair

John Mayer – awarded 2001 doctoral prize at Syracuse University  
Todd Manini – awarded 2005 doctoral prize at Syracuse University  
Brian Clark – awarded 2006 doctoral prize at Syracuse University  
Moshe Marko  
Summer Cook – NASA GSRP  
Lynne Logan – Rocky Mountain State University  
Kyle Hackney – NASA GSRP  
Meghan Everett – University of Houston, research advisor

Ph.D. Dissertation Committee

Fenia Giannopoulou  
Tracy Baynard  
Ruth Franklin  
Christopher Fry – University of Texas Medical Branch  
David Gundermann – University of Texas Medical Branch

Ph.D. Chair of Dissertation Defense

Laurie Witzel  
Joanne Scandale  
Brian Margulles  
Andrew Campbell

**RESEARCH POSITIONS**

1/12 to 7/16	NASA Lead Scientist, Exercise Physiology and Countermeasures National Aeronautics and Space Administration, Johnson Space Center & University Space Research Association, Houston, TX
1/09 to 1/12	Project Scientist, Project, National Aeronautics and Space Administration, Johnson Space Center & University Space Research Association, Houston, TX
9/08 to 12/08	Exercise Physiology Lab Lead, National Aeronautics and Space Administration, Johnson Space Center & University Space Research Association, Houston, TX
8/01 to 9/08	Research Associate Professor, Department of Physical Medicine and Rehabilitation, Upstate Medical University, Syracuse, NY
1/98 to 9/08	Senior Research Associate, Maxwell Center for Policy Research, Syracuse University, Syracuse, NY
8/97 to 9/08	Director, Musculoskeletal Research Laboratory, Syracuse University, Syracuse, NY

7/95 to 7/96 Visiting Scholar, Department of Physiology, Michigan State University, East Lansing, MI

4/94 to 7/95 Research Associate, Department of Physiology, Michigan State University, East Lansing, MI

9/91 to 4/94 National Aeronautics and Space Administration Graduate Student Researchers Program, Ohio University, and Kennedy Space Center, FL

1/90 to 8/90 National Aeronautics and Space Administration Space Life Sciences Training Program, Kennedy Space Center, FL

### **PUBLICATIONS IN PEER REVIEWED JOURNALS**

Feltz, DL, Hill CR, Samendinger S, Myers ND, Pivarnik JM, Winn B, Ede A, PLOUTZ-SNYDER, LL. Can Simulated Partners Boost Workout Effort in Long-Term Exercise? *Journal of Strength and Conditioning Research*. (2020) 34(9), 2434-2442.

Lee SMC, Martin DS, Miller CA, Scott JM, Laurie SS, Macias BR, Mercaldo ND, PLOUTZ-SNYDER LL, Stenger MB. Venous and Arterial Responses to Partial Gravity. *Frontiers in Physiology*. 2020 Jul 28;11:863.

English KL, Goetchius E, Buxton R, Ryder JW, Ploutz-Snyder R, Guilliams M, Scott JM, Downs M, PLOUTZ-SNYDER LL. High Intensity Training During Spaceflight: Results from the NASA Sprint Study. *Nature Microgravity*. npj Microgravity (2020)6:21.

Samendinger S, Hill CR, Kerr NL, Winn B, Ede A, Pivarnik JM, PLOUTZ-SNYDER, LL, Feltz DL. Group Dynamics Motivation to Increase Exercise Intensity with a Virtual Partner. *Journal of Sport and Health Sciences*. 2019 May;8(3):289-297.

Ryder JW, Fullmer P, Buxton RE, Crowell JB, Goetchius E, Bekdash O, DeWitt JK, Hwang EY, Feiveson A, English KL, PLOUTZ-SNYDER, LL. A Novel Approach for Establishing Fitness Standards For Occupational Task Performance. *European Journal of Applied Physiology*. 2019 Jul;119(7):1633-1648.

English, KL, Bloomberg JJ, Mulavara AP, PLOUTZ-SNYDER LL. Exercise Countermeasures To Neuromuscular Deconditioning In Spaceflight. *Comprehensive Physiology*, 10(1):171-196, 2019.

Scott JM, Tucker WJ, Martin D, Crowell JB, Goetchius E, Ozgur O, Hamilton S, Otto C, Gonzales R, Ritter M, Newby N, DeWitt J, Stenger MB, Ploutz-Snyder R, PLOUTZ-SNYDER L, Morgan WH, Haykowsky MJ. Association of Exercise and Swimming Goggles with Modulation of Cerebral-Ocular Hemodynamics and Pressures in a Model of Spaceflight Associated Neuro-Ocular Syndrome. *JAMA Ophthalmology*. Jun 1;137(6):652-659, 2019.

Koppelmans V, Scott JM, Downs ME, Cassady KE, Yuan P, Pasternak O, Wood SJ, De Dios YE, Gadd NE, Kofman I, Riascos R, Reuter-Lorenz PA, Bloomberg JJ, Mulavara AP, PLOUTZ-SNYDER LL, Seidler RD. Exercise Effects On Bed Rest-Induced Brain Changes. *PLoS One*, 13(10): e0205515, 2018.

Cromwell RL, Scott JM, Downs M, Yarbough PO, Zanello SB, PLOUTZ-SNYDER LL. Overview of the NASA 70-day Bed Rest Study. *Medicine and Science in Sports and Exercise*, 50(9): 1909-19, 2018.

PLOUTZ-SNYDER LL, Downs M, Goetchius, E, Crowell B, English K, Ploutz-Snyder RJ, Ryder J, Dillon EL, Sheffield-Moore M, Scott JM. Exercise Training Mitigates Multi-System Deconditioning During Bed Rest. *Medicine and Science in Sports and Exercise*, 50(9): 1920-28, 2018.

Scott JM, Martin D, Ploutz-Snyder RJ, Downs M, Dillon EL, Sheffield-Moore M, Urban RJ, PLOUTZ-SNYDER LL. Efficacy of Exercise and Testosterone To Mitigate Atrophic Cardiovascular Remodeling. *Medicine and Science in Sports and Exercise*, 50(9): 1929-39, 2018.

Dillon EL, Sheffield-Moore M, Durham WJ, PLOUTZ-SNYDER LL, Ryder JW, Danesi CP, Randolph KM, Gilkison CR, Urban RJ. Efficacy of Testosterone Plus NASA Exercise Countermeasures During Head-Down Bed Rest. *Medicine and Science in Sports and Exercise*, 50(9): 1929-39, 2018.

Murach KA, Minchev K, Grosicki GJ, Lavin K, Perkins RK, Ryder JW, Scott J, PLOUTZ-SNYDER LL, Trappe TA, Trappe S. Myocellular Responses to Concurrent Flywheel Training during 70 Days of Bed Rest. *Medicine and Science in Sports and Exercise*, 50(9): 1950-60, 2018.

Mulavara AP, Peters BT, Miller CA, Kofman IS, Reschke MF, Taylor LC, Lawrence EL, Wood SJ, Laurie SS, Lee SMC, Buxton RE, May-Phillips TR, Stenger MB, PLOUTZ-SNYDER LL, Ryder JW, Feiveson AH, Bloomberg JJ. Physiological and Functional Alterations After Spaceflight and Bed Rest. *Medicine and Science in Sports and Exercise*, 50(9): 1961-80, 2018.

De Witt, JK, English, KL, Crowell JB, Kalogera KL, Guilliams ME, Nieschwitz BE, Hanson AM, PLOUTZ-SNYDER LL. Isometric Mid-thigh Pull Reliability and Relationship to Deadlift 1 RM. *Journal of Strength and Conditioning Research*, 32(2):528-533, 2018.

Samendinger S, Hill R, Kerr NL, Winn B, Ede A, Pivarnik JM, PLOUTZ-SNYDER LL, Feltz DL. Group Dynamics Motivation to Increase Exercise Intensity with a Virtual Partner. *Journal of Sport and Health Science*, accepted 2018.

Scott JM, Martin DS, Ploutz-Snyder RJ, Matz T, Caine T, Downs M, Kyle Hackney K, Buxton R, Ryder JW, PLOUTZ-SNYDER LL. Panoramic Ultrasound: a Novel and Valid Tool for Monitoring Change in Muscle Mass. *Journal of Cachexia, Sarcopenia and Muscle*, 8(3):476-81, 2017.

Feltz DL, PLOUTZ-SNYDER LL, Winn B, Kerr NL, Pivarnik JM, Ede A, Hill C, Samendinger S, Jeffery W. Simulated Partners and Collaborative Exercise (SPACE) to Boost Motivation for Astronauts: Study Protocol. *BMC Psychology*, Nov 14;4(1):54, 2016.

Hackney KJ, Downs ME, PLOUTZ-SNYDER LL. Blood Flow Restricted Exercise Compared to High Load Resistance Exercise during Unloading. *Aerospace Medicine and Human Performance*, Aug; 87 (8):688-96, 2016.

Petersen N, Jaekel P, Rosenberger A, Weber T, Scott J, Castrucci F, Lambrecht G, PLOUTZ-SNYDER LL, Damann V, Kozlovskaya I, Mester J. Exercise in space: the European Space Agency Approach to In-flight Exercise Countermeasures for Long-duration Missions on ISS. *Extreme Physiology & Medicine*, 2015, 5:9, 2016.

PLOUTZ-SNYDER LL. Evaluating Countermeasures in Spaceflight Analogs. *Journal of Applied Physiology*, 120 (8):915-21, 2016.

English KL, Lee SMC, Loehr JA, Ploutz-Snyder RJ, PLOUTZ-SNYDER LL. Isokinetic Strength Changes Following Long-duration Spaceflight on the ISS. *Aerospace Medicine and Human Performance*, 86(12, Suppl):A68-A77, 2015.

Koppelmans V, Mulavara AP, Peng Y, Cassady KE, Cooke KA, Wood SJ, Reuter-Lorenz PA, De Dios YE, Stepanyan V, Szecsy DL, Gadd NE, Kofman I, Scott JM, Downs ME, Bloomberg JL, PLOUTZ-SNYDER LL, Seidler RD. Exercise as Potential Countermeasure for the Effects of 70 Days of Bed Rest on Cognitive and Sensorimotor Performance. *Frontiers in Systems Neuroscience*, 9:121, 2015.

Hackney K, Scott JM, Hanson AM, English KL, Downs M, PLOUTZ-SNYDER LL. The Astronaut-Athlete: Optimizing Human Performance in Space. *Journal of Strength and Conditioning Research*, 29(12):3531-45, 2015.

Petersen N, Thieschäfer L, PLOUTZ-SNYDER LL, Damann V, Mester J. Reliability of a New Test Battery for Fitness Assessment of the European Astronaut Corps. *Extreme Physiology & Medicine*, 2015, 4:12, 2015.

PLOUTZ-SNYDER LL, Bloomfield S, Smith SM, Hunter SK, Templeton K, Bembem D. Effects of Sex and Gender on Adaptation to Space: Musculoskeletal Health. *Journal of Women's Health*, 23(11):963-6, 2014.

Moore AD, Downs ME, Lee SM, Feiveson AH, Knudsen P, PLOUTZ-SNYDER LL. Peak Exercise Oxygen Uptake during and Following Long-Duration Spaceflight. *Journal of Applied Physiology*, 117:231-8, 2014. This article was featured on APS Select as the most outstanding article of the month from JAP.



Downs ME, Hackney KJ, Martin D, Caine TL, Cunningham D, O'Connor DP, PLOUTZ-SNYDER LL. Acute Vascular and Cardiovascular Responses to Blood Flow-Restricted Exercise. *Medicine and Science in Sports and Exercise*, Aug; 46 (8):1489-97, 2014. This article was featured on an ACSM hot topics as an outstanding article of the month from MSSE.

Scott JM, Hackney K, Downs M, Guined J, Ploutz-Snyder RJ, Fiedler J, Cunningham D, PLOUTZ-SNYDER LL. The Metabolic Cost of an Integrated Exercise Program Performed During 14 Days of Bed Rest. *Aviation Space and Environmental Medicine*, Jun; 85 (6):612-7, 2014.

De Witt JK and PLOUTZ-SNYDER LL. Ground Reaction Forces during Treadmill Running in Microgravity. *Journal of Biomechanics*, 18:47(10):2339-47, 2014.

De Witt JK, Schaffner G, PLOUTZ-SNYDER LL. Bungee Force Level, Stiffness, and Variation during Treadmill Locomotion in Simulated Microgravity. *Aviation Space and Environmental Medicine*, Apr; 85 (4):449-55, 2014.

Cook SB, Kanaley JA, PLOUTZ-SNYDER LL. Neuromuscular Function Following Muscular Unloading and Blood Flow Restricted Exercise. *European Journal of Applied Physiology*, 114(7):1357-65, 2014.

PLOUTZ-SNYDER LL, Downs M, Ryder J, Hackney K, Scott J, Buxton R, Goetchius E, Crowell B. Integrated Resistance and Aerobic Exercise Protects Fitness during Bed Rest. *Medicine and Science in Sports and Exercise*, Feb; 46 (2):358-68, 2014.

Sheffield-Moore M, Wiktorowicz JE, Soman KV, Danesi CP, Kinsky MP, Dillon EL, Randolph KM, Casperson SL, Gore DC, Horstman AM, Lynch JP, Doucet BM, Mettler JA, Ryder JW, PLOUTZ-SNYDER LL, Hsu JW, Jahoor F, Jennings K, White GR, McCammon SD, Durham WJ. Sildenafil Increases Muscle Protein Synthesis and Reduces Muscle Fatigue. *Clinical and Translational Science*, Dec; 6 (6):463-8, 2013.

Hackney KL, Kelleher A, PLOUTZ-SNYDER LL. Amino Acid-Carbohydrate Intake Combined with Multiple Bouts of Resistance Exercise Increases Resting Energy Expenditure. *ISRN Nutrition*, May; 26:948695, 2013. doi: 10.5402/2013/948695.

Ryder JW, Buxton R, Goetchius E, Scott-Pandorf M, Hackney K, Fiedler J, Ploutz-Snyder R, Bloomberg JJ, PLOUTZ-SNYDER LL. Influence of Muscle Strength to Weight Ratio on Functional Task Performance. *European Journal of Applied Physiology*, 113(4):911-21, 2013.

Mayer J, Graves JE, Manini TM, Nuzzo JL, PLOUTZ-SNYDER LL. Lumbar Muscle Activity During Common Lifts: A Preliminary Study Using Magnetic Resonance Imaging. *Journal of Applied Biomechanics*, 29(2):147-54, 2013.

Hackney KJ, Everett M, Scott JM, PLOUTZ-SNYDER LL. Blood Flow Restricted Exercise in Space. *Extreme Physiology and Medicine*, 1:12, 2012.

English KL, Lee S, Loehr JA, Ploutz-Snyder RJ, PLOUTZ-SNYDER LL. Isokinetic Strength Changes Following Long-Duration Space Flight on the International Space Station. *Aviation Space and Environmental Medicine*, Dec;86(12 Suppl):A68-A77, 2015. doi: 10.3357/AMHP.EC09.2015.

Marko M, Prince M, Neville C, PLOUTZ-SNYDER LL. Lower Extremity Force Decrements Identify Early Mobility Decline Among Community Dwelling Older Adults. *Physical Therapy Journal*, 92(9):1148-59, 2012.

Hackney KJ, Cook SB, Fairchild TJ, PLOUTZ-SNYDER LL. Skeletal Muscle Volume Following Dehydration Induced by Exercise in Heat. *Extreme Physiology and Medicine*, 1:3, 2012.

Smith SM, Heer MA, Shackelford L, Sibonga J, PLOUTZ-SNYDER LL, Zwart SR. Benefits for Bone from Resistance Exercise and Nutrition in Long-Duration Spaceflight: Evidence from Biochemistry and Densitometry. *Journal of Bone and Mineral Research*, 27(9):1896-906, 2012.

Scott JM, Martin DS, Ploutz-Snyder RJ, Caine T, Matz T, Arenzo NM, Buxton R, PLOUTZ-SNYDER LL. Reliability and Validity of Panoramic Ultrasound for Long-Duration Spaceflight. *Ultrasound in Medicine and Biology*, Sep; 38 (9):1656-61, 2012.

English KL, Hackney KJ, De Witt JK, Ploutz-Snyder RJ, Goetchius ER, PLOUTZ-SNYDER LL. A Ground-Based Comparison of the Muscle Atrophy Research and Exercise Systems (MARES) and a Commercially Available Isokinetic Dynamometer. *Acta Astronautica*, 92:3-9, 2013.

Hackney KJ and PLOUTZ-SNYDER LL. Unilateral Lower Limb Suspension: Integrative Physiological Knowledge from the Past 20 years (1991-2011). *European Journal of Applied Physiology*, 112(1):9-22, 2012.

Hackney KJ, Cook SB, PLOUTZ-SNYDER LL. Nutrition and Resistance Exercise during Reconditioning from Unloading. *Aviation, Space and Environmental Medicine*, 82:805-809, 2011.

Cowley PM, PLOUTZ-SNYDER LL, Baynard T, Heffernan KS, Young JS, Hsu S, Lee M, Pitetti KH, Reiman MP, Fernhall B. The Effect of Progressive Resistance Training on Leg Strength, Aerobic Capacity and Functional Tasks of Daily living in Persons with Down syndrome. *Disability and Rehabilitation Research*, 25(2):545-55, 2011.

Cook SB, Druger M, PLOUTZ-SNYDER LL. Scientific Literacy and Attitudes towards American Space Exploration among College Undergraduates. *Space Policy*. 27(1):48-52, 2011.

Spiering BA, Lee SMC, Mulavara AP, Bentley JR, Buxton RE, Lawrence EL, Sinka J, Williams ME, PLOUTZ-SNYDER LL, Bloomberg JJ. Test Battery Designed to Quickly and Safely Assess Diverse Indices of Neuromuscular Function after Unweighting. *Journal of Strength and Conditioning Research*. 25(2):545-555, 2011.

Cook SB, Brown KA, Deruisseau K, Kanaley JA, PLOUTZ-SYNDER LL. Skeletal Muscle Adaptations Following Blood Flow-Restricted Training during 30 days of Muscular Unloading. *J Appl Physiol*, Aug; 109 (2):341-9. 2010

Kelleher AR, Hackney KJ, Fairchild TJ, Keslacy S, PLOUTZ-SNYDER LL. The Metabolic Costs of Reciprocal Supersets vs. Traditional Resistance Exercise in Young Recreationally Active Adults. *Journal of Strength and Conditioning Research*, 24(4):1043-51, 2010.

Cowley PM, PLOUTZ-SNYDER LL, Baynard T, Heffernan K, Jae SY, Hsu S, Lee M, Pitetti KH, Reiman MP, Fernhall B. Physical Fitness Predicts Functional Tasks in Individuals with Down syndrome. *Medicine and Science in Sports and Exercise*, 42(2):399-93, 2010.

Baynard T, Carhart RL, PLOUTZ-SNYDER LL, Weinstock R, Kanaley JA. Short-Term Exercise Training Improves Aerobic Capacity with No Change in Arterial Function in Obesity. *European Journal of Applied Physiology*, 107(3):299-308, 2009.

Soares-Caldeira LF, Ritti-Dias RM, Okuno NM, Cyrino ES, Gurjão AL, PLOUTZ-SNYDER LL. Familiarization Indexes in Sessions of 1-RM Tests in Adult Women. *Journal of Strength and Conditioning Research*, 23(7):2039-45, 2009.

Franklin RM, PLOUTZ-SNYDER LL, Kanaley JA. Longitudinal Changes in Abdominal Fat Distribution with Exercise. *Metabolism Clinical and Experimental*, 58: 311–315, 2009.

Cowley PM, Clark BC, PLOUTZ-SNYDER LL. Kinesthetic Motor Imagery and Spinal Excitability: the Effect of Contraction Intensity and Spatial Localization. *Clinical Neurophysiology*, 119(8):1849-56, 2008.

Baynard T, Carhart RL, PLOUTZ-SNYDER LL, Weinstock RS, Kanaley JA. Short-Term Training Effects on Diastolic Function in Obese Persons with the Metabolic Syndrome, *Obesity*, Jun;16 (6):1277-83, 2008.

Cook SB, Clark BC, PLOUTZ-SNYDER LL. Effects of Exercise Load and Blood Flow Restriction on Skeletal Muscle Function. *Medicine and Science in Sports and Exercise*, 39(10):1708-13, 2007.

Manini TM, Marko M, Vanarnam T, Cook S, Fernhall B, Burke J, PLOUTZ-SNYDER LL. Efficacy of Resistance and Task-Specific Exercise in Older Adults. *Journals of Gerontology: Biological Science and Medical Science*, 62(6):616-23, 2007.

Clark BC, Manini TM, PLOUTZ-SNYDER LL. Fatigue-Induced Changes in Phasic Muscle Activation Patterns during Dynamic Trunk Extension Exercise. *American Journal of Physical Medicine and Rehabilitation*, 86(5):373-9, 2007.

Clark BC, Cook SB, PLOUTZ-SNYDER LL. Reliability of Techniques to Assess Human Neuromuscular Function *in Vivo*. *Journal of Electromyography and Kinesiology*, 17:90-101, 2007.

Kanaley JA, Giannopoulou I, PLOUTZ-SNYDER LL. Regional Differences in Abdominal Fat Distribution. *International Journal of Obesity*, 31(1):145-52, 2007.

Clark BC, Pierce JR, Manini TM, PLOUTZ-SNYDER LL. Effect of Prolonged Unweighting of Human Skeletal Muscle on Neuromotor Control. *European Journal of Applied Physiology*, 100(1):53-62, 2007.

Manini TM, Clark BC, Nalls MA, Goodpaster BH, PLOUTZ-SNYDER LL, Harris TB. Reduced Physical Activity Increases Inter-muscular Adipose Tissue. *American Journal of Clinical Nutrition*, 85(2):377-84, 2007.

PLOUTZ-SNYDER LL, Clark BC, Logan L, Turk M. Evaluation of Spastic Muscle in Stroke Survivors Using MRI and Resistance to Passive Motion. *Archives of Physical Medicine and Rehabilitation*, 87(12):1636-42, 2006.

Pierce JR, Clark BC, PLOUTZ-SNYDER LL, Kanaley JA. Growth Hormone and Muscle Function Responses to Skeletal Muscle Ischemia. *Journal of Applied Physiology*, 101(6):1588-95, 2006.

Manini TM, Cook SB, VanArnam T, Marko M, PLOUTZ-SNYDER LL. Evaluating Task Modification as a Standardized Measure of Functional Limitation: Repeatability and Comparability. *Journals of Gerontology: Biological and Medical Sciences*, 61(7):718-25, 2006.

Cook SB, Clark BC, PLOUTZ-SNYDER LL. Accelerometry as a Measure of Subject Compliance in Unilateral Lower Limb Suspension. *Aviation Space and Environmental Medicine*, 77(9):953-6, 2006.

Clark BC, Fernhall B, PLOUTZ-SNYDER LL. Adaptations in Human Neuromuscular Function to Prolonged Unweighting. Part I: Contractile Properties. *Journal of Applied Physiology*, 101(1):256-63, 2006.

Clark BC, Manini TM, Bolanowski SJ, PLOUTZ-SNYDER LL. Adaptations in Human Neuromuscular Function to Prolonged Unweighting. Part II: Neural Properties. *Journal of Applied Physiology*, 101(1):264-72, 2006.

Ordway NR, Hand N, Briggs G, PLOUTZ-SNYDER LL. Reliability of Knee and Ankle Strength Measures in an Older Adult Population. *Journal of Strength and Conditioning Research*, 20(1) 82-7, 2006.

Manini TM, Clark BC, Tracy B, Burke J, PLOUTZ-SNYDER LL. Resistance and Functional Training Reduces Knee Extensor Fluctuations in Functionally Limited older Adults. *European Journal of Applied Physiology*, 95(5-6):436-46, 2005.

Manini TM, Mayer JM, Sagendorf KS, PLOUTZ-SNYDER LL. Trunk Extensor Muscle Function in Young and Old Women: a Pilot Study. *Journal of Back and Musculoskeletal Rehabilitation*, 18:5-13, 2005.

Mayer JM, Graves JE, Clark BC, Formikell M, PLOUTZ-SNYDER LL. The Use of Magnetic Resonance Imaging to Evaluate Lumbar Muscle Activity during Trunk Extension Exercise at Varying Intensities. *Spine*, 39(22):2556-63, 2005.

Manini TM, Druger M, PLOUTZ-SNYDER LL. Misconceptions of Strength Exercise in the Elderly. *Journal of Physical Activity & Aging*, 13:422-33, 2005.

Clark BC, Collier SR, Manini TM, PLOUTZ-SNYDER LL. Sex Differences in Muscle Fatigability and Activation Patterns of the Human Quadriceps Femoris. *European Journal of Applied Physiology*, 94:196-206, 2005.

Manini TM, Cook SB, Ordway NR, Ploutz-Snyder RJ, PLOUTZ-SNYDER LL. Knee Extensor Unsteadiness does not Predict Functional Limitation in Older Adults. *American Journal of Physical Medicine & Rehabilitation*, Feb; 84 (2):112-121, 2005.

Giannopoulou I, PLOUTZ-SNYDER LL, Carhart R, Weinstock RS, Fernhall B, Goulopoulou S, Kanaley JA. Exercise is required for Visceral Fat Loss in Postmenopausal Women with Type 2 Diabetes. *Journal of Clinical Endocrinology and Metabolism*, 90(3):1511-8, 2005.

Clark BC, Manini TM, Ordway NR, PLOUTZ-SNYDER LL. Leg Muscle Activity During Walking with Assistive Devices at Varying Levels of Weight Bearing. *Archives of Physical Medicine and Rehabilitation*, 85 (9):1555-1560, 2004.

Fenicchia LM, Kanaley JA, Azevedo JL, Miller CS, Weinstock RS, Carhart RL, PLOUTZ-SNYDER LL. Acute Changes in Glucose Tolerance after Resistance Exercise Training in Women with Type 2 Diabetes. *Metabolism*, 53:284-9, 2004.

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### **INVITED PRESENTATIONS**

Texas A&M University, College Station, TX. Strategies for Development of Exercise Programs to Mitigate Multi-system Deconditioning during Disuse, November 2018.

Marquette University, Milwaukee, WI. A Human Mission to Mars? Physiologic Barriers to Long Duration Spaceflight, March 2017.

Department of Physical Medicine and Rehabilitation Grand Rounds, University of Michigan. Mitigation of Prolonged Bed Rest Deconditioning with Resistance and Aerobic Exercise, August 2016.

Effects of Microgravity on Musculoskeletal and Cardiovascular Physiology and the Role of Exercise Countermeasures in the Symposium Physics and Biology of a Mars Mission, sponsored by United Nations Committee on Space Research at the Radiation Research Society annual meeting, Weston, FL, September 2015.

Highlights from ISS Preliminary Results from NASA's Sprint Study: Exercise Prescription for Protection of VO<sub>2</sub>-max and Muscle Strength. Humans in Space, Prague, Czech Republic, June 2015.

International Space Medicine Summit. Rice University, Houston, TX. Invited panelist for Use of Spaceflight Analogs in Research, June 2015.

NSBRI Symposium towards Integrated Countermeasures for Deep Space Exploration: Vestibular Function for Balance and Beyond. Exercise Countermeasures, May 2015.

Ohio University Honors Tutorial College Golos Lecture Series, Athens, OH. Human Mission to Mars: Barriers to Long Duration Spaceflight, October 2012.

European Space Agency, Noordwijk, The Netherlands. Bed Rest Strategic Planning Meeting. Exercise Countermeasures during Long Duration Bed Rest, April 2012.

Cleveland Clinic, Cleveland, OH. Current Topics in Space Medicine Lecture Series. Exercise Countermeasures on the ISS: Integrated Resistance and Aerobic Training, August 2011.

Regeneron Pharmaceuticals, Tarrytown, NY. Muscle Atrophy Research. Analogs, Evaluation and Prevention Strategies, March 2011.

National Strength and Conditioning Association, Orlando, FL. Gary A Dudley Memorial Lecture. Plasticity of Skeletal Muscle at the Extremes: Spaceflight to Elite Performance, July 2010.

American College of Sports Medicine, Baltimore, MD. Exercise countermeasures for the maintenance of fitness during long duration spaceflight. Symposium, June 2010.

Commencement speaker, School of Education, Syracuse University, Syracuse, NY, May 2010.

National Strength and Conditioning Association, Las Vegas, NV. Symposium: Efficacy of Blood Flow Restricted Exercise, July 2009.

American College of Sports Medicine, Seattle, WA. Symposium: Efficacy, Safety, and Mechanisms of Blood Flow Restricted Exercise, June 2009.

University of Houston, Houston, TX. Department of Health and Human Performance seminar series. Neuromuscular Adaptations to Reduced Use, March 2009.

Texas A&M University, College Station, TX. Space life sciences seminar series, 2 seminars, Neuromuscular Adaptations to Disuse and Prevention of Muscle Atrophy with Exercise Countermeasures, January 2009.

National Aeronautics and Space Administration. Johnson Space Center, Houston, TX. Relationship between Muscle Strength and Functional Activities, November 2007.

National Strength and Conditioning Association. Atlanta, GA. Pioneering Work in Muscle Atrophy, its Evaluation and Prevention in a Symposium in memory of Gary Dudley, July 2007.

United States Army Research Institute of Environmental Medicine, Natick, MA. Magnetic Resonance Imaging and the Evaluation of Skeletal Muscle, March 2007.

Mid-Atlantic Region of the American College of Sports Medicine, Harrisburg, PA. Reduced Blood Flow and Exercise, November 2006.

Syracuse University Gerontology Center, Maxwell School, Syracuse University – Evaluation of Everyday Activities in Older Adults, May 2005.

Mid-Atlantic Region of the American College of Sports Medicine. Scope and Limitations of Muscle Functional MRI, November 2004.

Department of Radiology, Michigan State University. Muscle Functional MRI, August 2003.

Symposium at national meeting of the Gerontological Society of America, Chicago, I. Issues in the Measurement of Disability, November 2001.

Mini-symposium at National American College of Sports Medicine conference, St. Louis, MO. Muscle Activity Localization Using MRI, May-June 2001.

Department of Exercise Science, University of Massachusetts – How can MRI be used to Assess Muscle Recruitment in Exercise, April 2001.

Syracuse University Gerontology Center, Maxwell School, Syracuse University – Muscle Function and Age, May 2000.

Center for Demography and Economics of Aging, Maxwell School, Syracuse University – Muscle Strength Thresholds Required for Everyday Function, February 1998.

Colloquia - American College of Sports Medicine, Denver, CO. Use of T2 for Identifying Muscle Activation, June 1997.

Gatorade Exercise Physiology Laboratory, The Quaker Oats Corporation – MRI Evaluation of Gastric Emptying, July 1996.

3<sup>rd</sup> Annual Central New York Exercise Science Symposium, SUNY Cortland – Use of MRI to Evaluate Muscle Activation Patterns, April 1996.

Department of Physiology, SUNY Upstate Medical University – Evaluation of Human Skeletal Muscle Function and Involvement in Exercise Following Periods of Prolonged Use and Disuse, April 1996.

#### **INVITED REVIEWS / BOOK CHAPTERS**

PLOUTZ-SNYDER LL. Evaluating Countermeasures in Analogs. A mini-review in the special topics issue Analogs of Microgravity: Space Research without Leaving the Planet. *Journal of Applied Physiology*, submitted 2015.

PLOUTZ-SNYDER LL and Scott J. Veracity of Data: Understanding Validity and Reliability. *ACSM Research Methods*, LWW, Ed. LE Armstrong and WJ Kraemer, 2015.

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PLOUTZ-SNYDER LL. Resistance Training in Women. *Resistance Training for Health and Rehabilitation*, Human Kinetics, Eds. JE Graves, B Franklin, 2004.

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#### **PEER REVIEWED ABSTRACTS**

Keller N, Whittle RS, McHenry N, Bhattacharya S, Duncan C, Koock E, PLOUTZ-SNYDER LL, de la Torre G, Sheffield-Moore M, Chamitoff G, Diaz-Artiles A. Augmenting Exercise Protocols with Interactive Virtual Reality Environments, Human Research Program Investigators' Workshop, Galveston, TX, Jan 27-30, 2020.

Lee SMC, Martin DS, Miller CA, Scott JM, Laurie SS, Macias BR, PLOUTZ-SNYDER LL, Stenger MB. What level of gravity is required to prevent Spaceflight-Associated Neuro-ocular Syndrome (SANS)? Human Research Program Investigators' Workshop, Galveston, TX, January 22-25, 2019.

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Ryder J, Fullmer P, Buxton R, Crowell B, Goetchius E, Bekdash O, DeWitt J, Hwang E, Feiveson A, English K, and PLOUTZ-SNYDER LL. Identification of Muscle Fitness Standards for Exploration Mission Tasks. Human Research Program Investigators' Workshop, Galveston, TX, January 22-25, 2019.

De Witt JK<sup>1</sup>, Buxton RE<sup>2</sup>, Williams ME<sup>1</sup>, Hanson AM<sup>3</sup>, Peters BT<sup>1</sup>, Pandorf MMS<sup>1</sup>, Sibonga JD<sup>3</sup>, and PLOUTZ-SNYDER LL<sup>4</sup>. Relationship between In-Flight Training Load and Musculoskeletal Health Outcomes. Human Research Program Investigators' Workshop, Galveston, TX, January 22-25, 2018.

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DeWitt J<sup>1</sup>, Fincke R<sup>1</sup>, PLOUTZ-SNYDER LL<sup>2</sup>. MPCV Exercise Devices – Objective and Subjective Testing of 4 Candidate Devices. Human Research Program Investigators' Workshop, Galveston, TX, January 22-25, 2017.

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PLOUTZ-SNYDER LL. 13<sup>th</sup> Annual Charles R. Ross Research Poster Session, SUNY Upstate Medical University – Use of Muscle Functional MRI with Older Individuals, December 1999.

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PLOUTZ LL, Tesch PA, Dudley GA. Effect of Unweighting on Muscle Mass Involvement during Exercise. Presented at American College of Sports Medicine, Seattle, WA, 1993. *Medicine and Science in Sports and Exercise*. 25(5): S156, 1993.

PLOUTZ LL, Tesch PA, Dudley GA. Effect of Limb Suspension on Muscle use in Exercise. Presented at Marshall University School of Medicine. Huntington, WV, 1993.

PLOUTZ LL and Dudley GA. Use of Thigh Musculature in the Squat Exercise. Presented at Integrative Biology of Exercise, American Physiological Society, Colorado Springs, CO, 1992. *The Physiologist*, 35(4):185, 1992.

PLOUTZ LL, Tatro DL, Dudley GA, Convertino VA. Changes in Plasma Volume during 24 Hours after Heavy Resistance Exercise. Presented at American College of Sports Medicine, Orlando, Florida, 1991. *Medicine and Science in Sports and Exercise*. 23(4): S20, 1991.

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Convertino VA, PLOUTZ LL, Doerr DF. Resetting of the Carotid-cardiac Baroreflex Response Relationship during Exercise in Man. Presented at American College of Sports Medicine, Orlando, Florida, 1991. *Medicine and Science in Sports and Exercise*. 23(4): S162, 1991.

PLOUTZ LL, Gilders RM, Hagerman FC. Hyperoxic Training. Presented at American College of Sports Medicine, Salt Lake City, Utah. 1990. *Medicine and Science in Sports and Exercise*. 22(2): S36, 1990.

PLOUTZ LL. Workshop entitled Tutorial: An Honors Diversity. National Collegiate Honors Council Conference, Miami, Florida, 1986. Discussed the Honors Tutorial College at Ohio University, attended by deans, directors, faculty and students in honors programs.

#### **GRANTS FUNDED**

National Aeronautics and Space Administration. *Integrated Resistance and Aerobic Training Study*. LL Ploutz-Snyder, PI. 10/1/2016-9/30/2019. \$154,559.

National Aeronautics and Space Administration. *Exploring the relationship between in-flight training load data and musculoskeletal health outcomes*. LL Ploutz-Snyder, PI. NASA NNX16AO73G. 7/26/2016-7/25/2019. \$56,757.

National Aeronautics and Space Administration. *Gravitational Dose and Multi-system Physiologic Response*. LL PLOUTZ-SNYDER, PI. 6/1/2016-5/31/2017, \$398,233.

National Aeronautics and Space Administration. *Development of a Muscle Adaptation in Space-Flight Simulator (MASS)*. LL PLOUTZ-SNYDER, Collaborator. 6/1/2016-3/31/2019, \$750,000.

National Aeronautics and Space Administration. *Sweat Rates during Continuous and Interval Aerobic Exercise: Implications for NASA Multipurpose Crew Vehicle (MPCV) Missions*. LL PLOUTZ-SNYDER, Co-PI. 10/1/2015-9/30/2016, \$100,000.

National Aeronautics and Space Administration. *Exploring the Relationship between In-flight Training Load Data and Musculoskeletal Health Outcomes*. LL PLOUTZ-SNYDER, PI. 10/1/2014-9/30/2015, \$100,000.

National Aeronautics and Space Administration. *Influence of Exercise Modality on Cerebral-Ocular Hemodynamics and Pressures*. LL PLOUTZ-SNYDER, Co-I. 10/1/2014-9/30/2015, \$100,000.

National Space Biomedical Research Institute. *Developing Personalized Countermeasures for Sensorimotor Adaptability: A Bedrest Study*. LL PLOUTZ-SNYDER, Co-I. 6/1/2014-5/31/2017, \$1,200,000.

National Aeronautics and Space Administration, EPSCoR solicitation NNH13ZHA001C. *Mechanical Unloading and Irradiation-induced Musculoskeletal Loss and Dysfunction: Molecular Mechanisms and Therapeutic Nanoparticles*. PI M Jaridi, West Virginia University Research Corporation, LL PLOUTZ-SNYDER, Consultant. \$750,000.

National Space Biomedical Research Institute solicitation NNJ12ZSA002N: *Cyber Partners: Harnessing Group Dynamics to Boost Motivation for More Efficient Exercise*. PI D Feltz, Michigan State University, LL PLOUTZ-SNYDER, Co-I. 6/2013-5/2016. \$1,190,655.

National Space Biomedical Research Institute. *Integrated Resistance and Aerobic Exercise Training with Small Compact Exercise Equipment*, submitted in response to NRA NNJ11ZSA002N. LL PLOUTZ-SNYDER, PI. 10/2012-9/2016, \$1,600,000.

National Space Biomedical Research Institute. *Musculoskeletal Alterations Team*, submitted in response to NSBRIRFA-12-01. LL PLOUTZ-SNYDER, Team Leader. 6/2012-5/2016, \$240,000.

European Space Agency. *Biomechanical Quantification of Bone and Muscle Loading to Improve the Quality of 0g Countermeasure Prescriptions for Resistive Exercise*. LL PLOUTZ-SNYDER, Co-I, pending final selection, score 91/100.

National Aeronautics and Space Administration. *Integrated Resistance and Aerobic Training Study (SPRINT)*. LL PLOUTZ-SNYDER, PI. 10/09-9/16, \$3,942,983.

National Aeronautics and Space Administration. *Biomechanical Analysis of Treadmill Locomotion on ISS*, LL PLOUTZ-SNYDER, co-I, PI J DeWitt. May 2009, \$50,641.

National Aeronautics and Space Administration. *Essential Amino Acid-Carbohydrate Intake Prior to Low Load Resistance Training with Blood Flow Restriction as a Countermeasure to Unweighting*. LL PLOUTZ-SNYDER, PI. Training grant for Ph.D. student K Hackney. 2008-2011, \$82,000.

National Aeronautics and Space Administration. *Efficacy of Resistance Exercise Coupled with Blood Flow Restriction as a Countermeasure to Unilateral Lower Limb Suspension*. LL PLOUTZ-SNYDER, PI. Training grant for Ph.D. student SB Cook. 2006-2009, \$82,000.

Department of Defense - SBIR subcontract with Intelligent Automation, Inc. *UWB Muscle Water Sensor Phase 2*. Contract #W81XWH-04-C-0011 \$750,000, 3/06-10/08, Subcontract to LL PLOUTZ-SNYDER. \$150,000.

Department of Defense - SBIR subcontract with Intelligent Automation, Inc. *Muscle Water Sensor*. LL PLOUTZ-SNNYDER, PI. 2/04-06/04, \$23,000.

US Department of Education – National Institute on Disability and Rehabilitation Research - Field Initiated Research Program. *Muscle Strength and Functional Performance in Individuals with Down syndrome*. LL PLOUTZ-SNYDER, Co-I. 7/1/03-6/30/06, \$448,621.

National Aeronautics and Space Administration. *Neuromuscular Function and Countermeasures to Prolonged Unweighting*. Training grant for Ph.D. student BC Clark. LL PLOUTZ-SNYDER, PI. 2003, \$72,000.

SUNY Upstate Medical University, *Research Support for Faculty*, LL PLOUTZ-SNYDER, PI. \$43,512.

Life Fitness Academy. Equipment grant in support of exercise training for older adults. LL PLOUTZ-SNYDER, PI. 2003, \$22,000.

Michael Pollock Memorial Grant, Life Fitness Academy, *Traditional vs. Functional Strength Training in Older Individuals with Pre-clinical Disability*. LL PLOUTZ-SNYDER, PI. 2001, \$5,000.

Hartford Walking Systems, *Comparison of Assisted and Non-assisted Walking*. LL PLOUTZ-SNYDER, PI. 2001, \$10,000.

National Institute on Aging. *Pilot Study for the Relationship of Muscle Strength to Function*. LL PLOUTZ-SNYDER, PI. 1/98-12/98, \$17896.78.

Quaker Oats Corporation (Gatorade). *Animation of MRI Images of Gastric Emptying*. LL PLOUTZ-SNYDER, PI. 1/12/97, \$5500.

Quaker Oats Corporation (Gatorade). *Measurement of Gastric Emptying Using Magnetic Resonance Imaging*. LL PLOUTZ-SNYDER, PI. 7/95-6/96, \$20,000.



National Aeronautics and Space Administration. *Comparison of Exercise Training Regimens for Long-Term Spaceflights*. LL PLOUTZ-SNYDER, Co-I. 1/93-12/93, \$45,000.

National Aeronautics and Space Administration Graduate Student Researchers Program. *Skeletal Muscle Activation Patterns Following Periods of Prolonged Use and Disuse*. LL PLOUTZ-SNYDER, PI. 10/92-10/94, \$62,000.

Ohio University Research Committee. *Hyperoxic Training*. LL PLOUTZ, Co-PI. 1989, \$5150.

John Houk Research Award, *Metabolic and Cardiovascular Adaptations to Hyperoxic Training*. LL PLOUTZ, PI. 1989, \$500.

#### **GRANTS SUBMITTED BUT NOT CURRENTLY FUNDED**

NASA NNJ15ZSA001N-NSBRI. SPACEXC: Simulated Partners for Collaborative EXergame Cycle. Co-I LL PLOUTZ-SNYDER, \$551,704.

NASA NNJ15ZSA001N-FLAGSHIP. *The Use of Multi-Omics to Characterize Disuse- and Exercise-Induced Adaptability*. Co-I LL PLOUTZ-SNYDER, \$500,000.

NASA NNJ15ZSA001N-FLAGSHIP. *Development of a Muscle Adaptation in Space-flight Simulator (MASS)*. Collaborator LL PLOUTZ-SNYDER, \$500,000.

NASA Directed Study. *Identification of Fitness Standards for Exploration Mission Tasks*. Co-I LL PLOUTZ-SNYDER, \$896,948.

NASA Omnibus NRA. *An Innovative Approach to Prescribing Treadmill Exercise Intensity and Optimizing Bone Loading*. PI M Downs, \$100,000, Co-I LL PLOUTZ-SNYDER, invited to step 2.

NASA Omnibus NRA. *Gait Retraining to Improve Efficacy of Treadmill Exercise to Protect Lower Extremity Bone Mineral Density*. PI J De Witt, \$100,000, Co-I LL PLOUTZ-SNYDER, invited to step 2.

NASA Omnibus NRA. *Influence of Gravity Replacement Load upon Running Biomechanics in Microgravity*. PI J De Witt, \$100,000, Co-I LL PLOUTZ-SNYDER, invited to step 2.

NASA Omnibus NRA. *Mechanisms Contributing to Alterations in Calf Muscle Mass and Strength: Implications for an Integrated Countermeasure*. PI J Scott, \$100,000, Co-I LL PLOUTZ-SNYDER, invited to step 2.

NASA Omnibus NRA. *Optimal Loading Profiles for Small Compact Exercise Devices*. PI LL Ploutz-Snyder, \$100,000, invited to step 2.

NASA Omnibus NRA. *Sweat Rates During Continuous and Interval Aerobic Exercise: Implications for NASA Multipurpose Crew Vehicle (MPCV) Missions*. PI J Ryder, \$100,000, Co-I LL PLOUTZ-SNYDER, invited to step 2.

National Space Biomedical Research Institute solicitation NNJ13ZSA002N: *Exercise Therapy to Mitigate Cervico-Thoracic Deconditioning during Spaceflight*. PI LL PLOUTZ-SNYDER, \$1,200,000. Score 88/100, no research funded on this topic.

National Space Biomedical Research Institute solicitation NNJ12ZSA002N: *Exergaming for Astronaut Musculoskeletal and Cardiovascular Maintenance*. PI D DiPasquale, Harvard, Consultant LL PLOUTZ-SNYDER.

NASA Omnibus NRA. *Novel Assessment of Dynamic Muscle Function Using Ultrasound*. PI J Scott, USRA, \$100,000, Co- I LL PLOUTZ-SNYDER.

NASA Omnibus NRA. *Development of a Sensorimotor Countermeasure to Enhance the Efficacy of Inflight Exercise, Reduce the Potential for Post-flight Orthostatic Intolerance and Limit Space Flight Induced changes in the major postural muscles*. PI M Reschke, Co-I LL PLOUTZ-SNYDER. 8/1/12-7/31/13. \$99,744, invited to step 2, not funded.

NASA NRA. *Comprehensive Morphological and Functional Muscle Assessment for Long-duration Spaceflight*. PI LL PLOUTZ-SNYDER. 10/1/2011-9/30/2014. \$908,957. Score 83/100.

National Space Biomedical Research Institute. *Effects of Radiation on the Effectiveness of Exercise Countermeasures to Protect Skeletal Muscle Function during Hindlimb Unloading*. PI Jeffrey Ryder Co-I LL PLOUTZ-SNYDER. 10/1/2011-9/30/2014. \$1,007,831. Score 69/100.

National Space Biomedical Research Institute. *Multiscale Modeling to determine In-vivo Muscular Force and Bone Strain for the Assessment of Exercise Countermeasures to Mitigate Muscle and Bone Loss*. PI Melissa Scott-Pandorf, Co-I LL PLOUTZ-SNYDER. 10/1/2011-9/30/2014.

National Dairy Council Step 1&2 - *Does Milk Enhance The Effectiveness of Exercise for the Maintenance of Muscle Function during Extended Periods of Unloading?* PI LL PLOUTZ-SNYDER. 1/1/2011-12/31/2013. \$176,000. Invited to step 2, not funded.

NASA NRA – NNJ09ZSA002N, *Maintenance of Cardiovascular, Muscle and Bone Health with a Combined Exercise and Nutrition Program*. PI LL PLOUTZ-SNYDER. 1/1/2011-12/31/2013. \$977,069. Score 69/100.

NASA NRA – NNJ09ZSA002N, *Developing Submaximal Exercise Protocols to Predict Readiness for Lunar Mission Specific EVA Tasks in Astronauts*. PI Richard Simpson, Co-I LL PLOUTZ-SNYDER.

NASA NRA – NNJ09ZSA002N. *Development of Performance Measure of Readiness to Perform for EVA Tasks*. PI Ram Bishu, Univ of Nebraska, Co-I LL PLOUTZ-SNYDER. Not Scored.

NASA NRA – NNJ09ZSA002N. *Omega-2 Fatty Acids: A Nutritional Countermeasure for Spaceflight-induced Bone and Muscle Loss*. PI Scott Smith, NASA, Collaborator LL PLOUTZ-SNYDER. Score 68/100.

National Aeronautics and Space Administration. *KineSys: Novel Exercise Device for use in Space-based Applications*. Co-investigator LL PLOUTZ-SNDYDER, with Mayhew and Bachrach, \$350,000. Submitted September 2007.

Office of Naval Medical Research. *Non-invasive Monitoring of Dissolved Nitrogen and Hydration for Prevention of Decompression Sickness*. \$675,000 total, \$232,000 to Syracuse University as subcontract to LL PLOUTZ-SNYDER, submitted July 2007.

National Space Biomedical Research Institute. *Low Load Resistance Training coupled with Blood Flow Occlusion as a Countermeasure to Prolonged Disuse*. PI LL PLOUTZ-SNYDER. \$659,432, 2007.

National Institute of Health R01. *Exercise Effects on Ectopic Fat Accumulation in Young and Older Obese Subjects*. Co-I LL PLOUTZ-SNYDER. \$1,321,870, 2007.

National Institute of Health, R21. *An Intelligent Passive Active Motor Recovery Strategy for Stroke Rehabilitation*. Co-I LL PLOUTZ-SNYDER. \$380,921, 2006.

National Institute of Health R03. *Effects of Task Constrains on Postural Stability in Aging*. Co-I LL PLOUTZ-SNYDER. \$150,000, 2006.

National Institute of Health. *Tracking Muscle Fluid Constituents using Spectrographic Electromagnetic Probing*. Submitted by TransTech Inc. PI R Gamache, Consultant LL PLOUTZ-SNYDER. \$500,000, 9/31/05-8/31/07.

General Mills Corporation Youth Nutrition and Fitness Grants. *Liberty Kids: Healthy Bodies, Healthy Minds*. Co-Investigator – in review LL PLOUTZ-SNYDER. \$10,000, 05/05-09/06.

National Aeronautics and Space Administration. *Neuromuscular Adaptation to Disuse*. PI LL PLOUTZ-SNYDER. \$459,851, 6/04-5/07, submitted 7/03.

US Department of Education – National Institute on Disability and Rehabilitation Research – RERC Program. *Center on Functional Performance and Physical Rehabilitation*. Co-I LL PLOUTZ-SNYDER. \$4,492,996, 12/1/2002-11/30/2007, submitted 8/02.

National Institute of Health. *An Interdisciplinary Program for Caregiver Well-being*. Co-I LL PLOUTZ-SNYDER. \$2,453,667, 1/1/03-12/31/07, submitted 2/02.

Doris Duke Charitable Foundation. *Stroke Rehabilitation – Muscle Spasticity*. PI LL PLOUTZ-SNYDER. \$200,000, submitted 11/27/01.

National Institute of Health. *Abdominal Fat Loss with Diet and Exercise in Type 2 Diabetic Women*. Co-I LL PLOUTZ-SNYDER. \$1,000,000, submitted 6/1/01.

National Institute on Aging. *Influence of Skeletal Muscle on Physical Function*. PI LL PLOUTZ-SNYDER. \$391,564, 1999.

National Institute on Aging. *Muscle Strength and Functioning at Older Ages*. PI LL PLOUTZ-SNYDER. \$75,500, 1999.

National Institute on Aging. *Center for Demography and Economics of Aging (Maxwell)*. PI Doug Wolf, Senior Faculty Associate LL PLOUTZ-SNYDER. \$2,000,000. ~\$70,000 specifically for the Musculoskeletal Research Laboratory/salaries/equipment/ etc., 1998.

North American Spine Society. *Using muscle functional magnetic resonance imaging to evaluate the effects of spinal manipulative therapy and resistance training on the activation patterns of the lumbar extensor muscles during exercise in chronic low back pain patients*. PI LL PLOUTZ-SNYDER. \$23,285, 1997.

National Aeronautics and Space Administration. *Resistance Exercise Countermeasure to Unweighting Induced Muscle Atrophy and Dysfunction*. PI LL PLOUTZ-SNYDER. \$525,659, first submission and requested revision both in 1996.

National Institute of Aging. *Decreased Skeletal Muscle Function in Aging Humans*. PI LL PLOUTZ-SNYDER. \$67,651, 1996.

American Federation of Aging Research. *Skeletal Muscle Function in Aging Humans*. PI LL PLOUTZ-SNYDER. \$40,000, 1996.

Women's Sports Foundation. *Fluid Rehydration and Swimming*. PI PLOUTZ-SNYDER. \$5,000, 1996.

#### **STUDENT GRANTS FUNDED**

Syracuse University: Graduate School Travel Grant. *Effects of Exercise Intensity and Vascular Occlusion Pressure and Duration on Skeletal Muscle Function*. \$400. Student: Summer Cook. 2007.

Syracuse University: Graduate School Travel Grant. *The Effect of Resistance Training in Individuals with Down syndrome*. \$400. Student: Patrick Cowley. 2007.

Syracuse University: Graduate School Travel Grant. *Reliability and Validity of Handheld Dynamometer to Assess Knee and Ankle Strength in an Older Adult Population*. \$400. Student: Seung Jung. 2007.

Syracuse University: Graduate School Travel Grant. *Influence of Motor Imagery on Disuse-induced Strength Loss and Central Activation Function*. \$400. Student: Summer Cook. 2006

Syracuse University: Graduate School Travel Grant. *Kinesthetic Motor Imagery Acutely Increases Spinal Excitability*. \$400. Student: Patrick Cowley. 2006

Syracuse University: SOE Creative Research Grant. *Efficacy of Resistance Exercise Coupled with Blood Flow Restriction as a Countermeasure to Prolonged Unweighting*. \$1000. Student: Summer Cook. 2006.

Syracuse University: SOE Creative Research Grant. *Neuromuscular Characteristics of Individuals with Down syndrome*. \$610. Student: Patrick Cowley. 2006.

American College of Sports Medicine. *Resistance Exercise and Ischemia in Simulated Spaceflight*. \$5000. Student: Summer Cook. 2006.

National Aeronautics and Space Administration Space Physiology Research Grant through the American College of Sports Medicine Foundation. *Countermeasures to Disuse-induced Neuromuscular Dysfunction*. \$5,000. 2005-2006.

SUNY Upstate Medical University. *Sensory Threshold Electrical Stimulation: Effects on Muscle MRI and mf-MRI*. \$12,500. Student: Lynne Logan. February 2005

TASCNetwork. *Sensory Threshold Electrical Stimulation: Effects on Muscle MRI and mf-MRI*. Equipment grant of \$15,000. 2005.

American Physical Therapy Association. *Sensory Threshold Electrical Stimulation: Effects on Muscle MRI and mf-MRI*. \$1,000. Student: Lynne Logan. February 2005.

National Aeronautics and Space Administration Space Physiology Research Grant through the American College of Sports Medicine Foundation. *Neuromuscular Adaptations to Simulated-microgravity*. \$2,500. 2004-2005.

American College of Sports Medicine & Robert Wood Johnson Foundation. *Traditional vs. Functional Strength Training in Older Subjects*. \$10,000. Student: Todd Manini.

Syracuse University: SOE Creative Research Grant. *Functional versus Resistance Training: Improvement of Physical Function in Functionally Limited Older Adults*. \$1000. Student: Todd Manini.

Sidney Young Research Award. *Relationship of Self-Reported and Observed Performance in Daily Tasks among Older Adults*. \$215.00. Student: Summer Baldwin.

Syracuse University: SOE Creative Research Grant. *Relationship of Self-Reported and Observed Performance in Daily Tasks among Older Adults*. \$201.21. Student: Summer Baldwin.

Mid-Atlantic Region Chapter of the American College of Sports Medicine Student Research Grant Award. *Gender Differences in Skeletal Muscle Fatigability* \$500. Student: Brian Clark. November 2002.

Syracuse University: SOE Creative Research Grant. *Gender Differences in Human Skeletal Muscle Fatigability*. \$1,000. Student: Brian Clark. July 2002.

Syracuse University: Sidney W. Young Graduate Student Research Award. *Gender Differences in Skeletal Muscle Fatigability*. \$375. Student: Brian Clark. February 2002.

Syracuse University: Graduate School Travel Grant. *Effect of Muscle Fatigue on the Electromyogram Characteristics of the Lumbar Para-spinal and Hip Extensor Muscles*. \$400. Student: Brian Clark. January 2002.

Syracuse University: Graduate School Travel Grant. *An EMG and Force Comparison for Walking with Crutches and an Ergonomically Designed Walker*. \$400. Student: Todd Manini. January 2002.

## **ORGANIZATIONS AND SERVICE**

Associate Editor

*Medicine and Science in Sports and Exercise*  
*Journal of Strength and Conditioning Research*  
*Nature Microgravity*

Manuscript Reviewer

*Physical Medicine and Rehabilitation International*  
*American Journal of Physiology: Heart and Circulatory Physiology*  
*Archives of Physical Medicine and Rehabilitation*  
*Aviation Space and Environmental Medicine*  
*Canadian Journal of Applied Physiology*  
*Experimental Brain Research*  
*International Journal of Sports Medicine*  
*Journal of Applied Physiology*  
*Medicine and Science in Sports and Exercise*

*Mental Retardation*  
*Muscle and Nerve*  
*Intellectual and Developmental Disabilities*

American College of Sports Medicine	<i>Fellow</i> – 1998 to present <i>Professional Member</i> – 1994 to present <i>Student Member</i> – 1991-1994
National Academy of Kinesiology	<i>Fellow</i> – 2017 to present
American Physiological Society	<i>Regular Member</i> – 1997-2010
New York Chiropractic College	Institutional Review Board – 1998-2000
Syracuse University Service	Chancellors Citation for Excellence Committee – 2007-2008 Elected to SU Faculty Senate – 2007 to present SU Gerontology Center Advisory Board – 2005 to present Middle States Study Group – 1998
School of Education Service	Search Committee Chair – Undergraduate Advisor Exercise Science – 2008 Search Committee Chair – Assistant Professor & Instructors Physical Education – 2008 Search Committee Chair – Assistant Professor in Exercise Science – 2007 Search Committee Chair – Assistant Professor in Exercise Science – 2006 Dean’s Council – 2004 to present Teaching Committee (Koszalka) – 2002 Research Methods Committee – 2000-2002 Curriculum Committee – 1998-2003 Community Building Task Force – 1998 Teaching Committee (Hinchman) – 1997 Judicial Committee – 1996-1997 Scholarship Committee – 1996
SUNY Upstate Medical Service	Ad hoc reviewer for the IRB Search Committee – Center for Children’s Health Policy Director

**Awards**

NASA Johnson Space Center Directors Group Achievement Award: SPRINT Ultrasound Team, October 2014.

NASA Johnson Space Center Group Achievement Award: Sex and Gender Team Report, September 2014.

NASA Software, Robotics and Simulation Division's Elite Team Award: Lower Body Loading Belt, May 2013.

NASA Human Research Program Peer Award – recognized by peer's for outstanding leadership, 2012.

NASA Space Life Sciences Recognition of Excellence: Open Innovation Service pilot program, 2011.

NASA Johnson Space Center Group Achievement Award: Functional Tasks Test Team, May 2010.